REPLY FOR COMMENT[1] ON "PRODUCTION OF DICALCIUM PHOSPHATE"

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Keywords: Production of dicalcium phosphate; uranium contamination; fluoride precipitation

We have been concerned with a method which is applicable in commercial scale. $CaHPO_4$ was produced by precipitating a fraction of P_2O_5 using calcium carbonate (not any other calcium salt) in order to achieve the precipitation reaction in a pH below the pH of uranium and fluoride precipitation range. Finally we adjusted the pH of the final product and the ratio between Ca and P. Therefore, the final product is not contaminated with uranium.

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Reply

In the paper "*Eur. Chem. Bull., 2013, 2(10), 752-757*" we published our method[2] for manufacturing of $CaHPO_4$ in industrial scale.

$CaHPO_4$ is produced in commercial scale generally in two possible ways. The first method based on production of phosphoric acid and precipitating $CaHPO_4$ using calcium salts.

The second method based on phosphate ore leaching with nitric acid (without producing phosphor gypsum) followed by direct precipitation of $CaHPO_4$.

The other, e.g. hydrometallurgical methods are just being at laboratory or pilot plant scale testing (we have no knowledge about commercial scale production by these methods).

In our previous paper[2] we have been concerned with the methods which are applicable at commercial scales.

According to our method $CaHPO_4$ was produced by precipitating a fraction of P_2O_5 formed in a nitric acid digestion of sphosphate ore using calcium carbonate (and not with other calcium salts) in order to achieve the precipitation reaction in a pH range below the pH of uranium and fluoride compounds precipitation range. In this way we could reach lower fluoride content than that is permitted by the standards (see in Table 5 in the original paper).[2]

Finally we adjust the pH of the final product and the ratio between Ca and P outside the reaction vessel contained the uranium or fluoride content occurred in the starting ore. Therefore, the final product is not contaminated with uranium or fluoride.

References

[1]Habashi, F. and Atbir, A., *Eur. Chem.Bull.*, **2014**, *3(2)*, 200

[2]El-Zahhar, A. A., Aly, M. M., Ahmad, A. M., Khalifa, M. I., El-Asmy, A., *Eur. Chem. Bull.*, **2013**, *2(10)*, 752-757.

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